



268 RspOA1 S2

2

### Amendments to the Specification

Please replace paragraph [0004] with the following amended paragraph:

[0004] In one approach to this problem, the client load is distributed to other download servers, for example in a cluster. This approach is typified in the document, *Mod\_Backhand, Internals Explained*, Theo Schlossnagle, available on the Internet, at ~~the URL~~ ~~"http://www.backhand.org/ApacheCon2001/US/backhand\_presentation.pdf."~~ A load-balancing algorithm is applied in order to select from among candidate servers to satisfy each new request. In one mode of operation, a client request is redirected to another server, using a HTTP redirect directive. In another mode of operation, the server acts as a proxy server, maintaining its connection with the client. The proxy technique still requires maintenance of many concurrent TCP sessions. Redirection requires opening new TCP sessions, and is relatively slow and inefficient. Furthermore, HTTP redirection is not transparent to the client. Thus, neither technique is optimal.

Please replace paragraph [0006] with the following amended paragraph:

[0006] Using a new thread to process each client request represents another approach. Multi-threading improves, but does

not eliminate the server overhead. Multi-threading virtualizes server resources from the aspect of the client, and is well supported in modern development environments. However, it does incur overhead, caused for example, by scheduling overhead, and lock contention. This can lead to serious performance degradation when the number of threads is large. In the context of an Internet service, concurrency demands can easily exceed the thread limit of practical servers. Examples of this approach are found in web servers, such as the Sun ONE Server<sup>TM</sup>, available from Sun Microsystems Inc., Palo Alto, California and the Internet Information Server (IIS) produced by Microsoft Corporation, One Microsoft Way, Redmond, WA 98052-6399. The above-noted limitations of this approach have been offset to some extent by bounding the thread pool.

Please replace paragraph [0031] with the following amended paragraph:

[0031] Turning now to the drawings, reference is initially made to Fig. 1, which is a high level schematic illustrating a networked client-server arrangement 10, and which is operative in accordance with a disclosed embodiment of the invention. A plurality of clients 12 are typically general-purpose computers or workstations, each having a memory 14 for an executing web browser 16. The clients 12, using their respective instances of the browser 16, form connections via a data network 18 to server hardware 20, and request files 22. The browser 16 can be any commercially available browser, such as the

Netscape<sup>TM</sup> Browser, available from Netscape Communications Corporation, P.O. Box 7050 Mountain View, CA 94039-7050, Internet Explorer<sup>TM</sup>, available from Microsoft Corporation, One Microsoft Way, Redmond, WA 98052-6399, or the Mozilla<sup>TM</sup> Browser, available from The Mozilla Foundation c/o OSAF, 543 Howard St. 5th Floor, San Francisco, CA 94105. The network 18 is typically the Internet. The server hardware 20 executes a server program 24, such as the Apache HTTP Server program, ver. 1.3 or ver. 2.0, available from the Apache Software Foundation, (~~http://www.apache.org/~~), 1901 Munsey Drive. Forest Hill, MD 21050-2747.

Please replace paragraph [0038] with the following amended paragraph:

[0038] Alternatively, download requests can be sent to the download manager 28 using an application programming interface (API) function, which is normally supplied to a web site developer. This function may be written as a PHP:hypertext preprocessor (PHP) extension script that is executed using a Zend Engine (version 1 or higher. PHP is a widely used general-purpose scripting language that is especially suited for Web development, and can be embedded into hypertext markup language (HTML) documents. PHP (version 4 or higher) and the Zend engine are both available from Zend Technologies Ltd., P.O. Box 3619, Ramat Gan, Israel, 52136. An example of such an API function is the function "send\_file (filename)". This function automatically invokes the process of transferring the download request from the server

hardware 20 to the download manager 28 as noted above. One advantage of this alternative is increased data security. The requested file need not necessarily map to a valid URL, and the client need not be made aware of the true URL of the file.